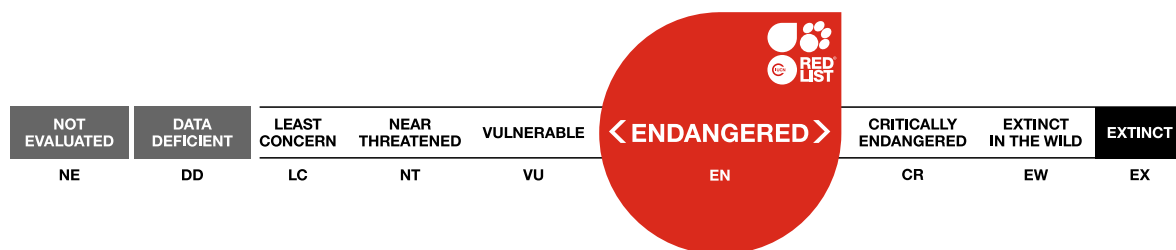


Dioon sonorenses, Peyote

Errata version

Assessment by: Bösenberg, J.D.



View on www.iucnredlist.org

Citation: Bösenberg, J.D. 2022. *Dioon sonorenses* (errata version published in 2023). *The IUCN Red List of Threatened Species* 2022: e.T42130A243387344. <https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T42130A243387344.en>

Copyright: © 2023 International Union for Conservation of Nature and Natural Resources

Reproduction of this publication for educational or other non-commercial purposes is authorized without prior written permission from the copyright holder provided the source is fully acknowledged.

Reproduction of this publication for resale, reposting or other commercial purposes is prohibited without prior written permission from the copyright holder. For further details see [Terms of Use](#).

The IUCN Red List of Threatened Species™ is produced and managed by the [IUCN Global Species Programme](#), the [IUCN Species Survival Commission](#) (SSC) and [The IUCN Red List Partnership](#). The IUCN Red List Partners are: [ABQ BioPark](#); [Arizona State University](#); [BirdLife International](#); [Botanic Gardens Conservation International](#); [Conservation International](#); [Missouri Botanical Garden](#); [NatureServe](#); [Re:wild](#); [Royal Botanic Gardens, Kew](#); [Sapienza University of Rome](#); [Texas A&M University](#); and [Zoological Society of London](#).

If you see any errors or have any questions or suggestions on what is shown in this document, please provide us with [feedback](#) so that we can correct or extend the information provided.

Taxonomy

Kingdom	Phylum	Class	Order	Family
Plantae	Tracheophyta	Cycadopsida	Cycadales	Zamiaceae

Scientific Name: *Dioon sonorensis* (De Luca, Sabato & Vázq.Torres) Chemnick, T.J.Greg. & Salas-Mor.

Synonym(s):

- *Dioon edule* Lindl. ssp. *sonorensis* (De Luca, Sabato & Vázq.Torres) R.McVaugh & Perez de la Rosa
- *Dioon tomasellii* De Luca, Sabato & Vázq.Torres ssp. *sonorensis* De Luca, Sabato & Vázq.Torres

Common Name(s):

- Nahuatl: Peyote
- languages:
- English: Virgin's Palm
- Spanish; Castilian: Plma de la Virgen

Assessment Information

Red List Category & Criteria: Endangered A2cd+4cd [ver 3.1](#)

Year Published: 2022

Date Assessed: June 28, 2019

Justification:

This species qualifies as Endangered based on estimated decline over the past 50 years and ongoing decline estimated to result in overall decline of >50% within three generations.

Previously Published Red List Assessments

[2010 – Endangered \(EN\)](#)

2003 – Endangered (EN)

1998 – Rare (R)

Geographic Range

Range Description:

This species is found along the Sierra Madre Occidental in southern Sonora and northern Sinaloa states of Mexico.

Country Occurrence:

Native, Extant (resident): Mexico (Sinaloa, Sonora)

Population

There are seven known subpopulations from five localities in the Sonora and Sinaloa states. It is likely that more subpopulations exist in southern Sonora and northern Sinaloa states. It is estimated that there are 2,400 mature individuals in the wild, but these subpopulations have experienced severe declines over the past 50 years, estimated to exceed 50%.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

This species occurs in high desert to oak woodland, usually on steep canyon walls or hillsides in extremely dry conditions. Plants also occur in the transition zone between oak-pine forest and tropical deciduous thorn forest.

Systems: Terrestrial

Use and Trade

Plants have been collected for the production of an alcoholic beverage. A subpopulation has also been wiped out due to poaching.

Threats (see Appendix for additional information)

Plants have been collected for the production of an alcoholic beverage. A subpopulation has also been extirpated due to plant collecting for horticulture. Climate change also seems to be affecting these plants. Large specimens have been found with dead stems due to water stress, but they are budding again at the base.

Conservation Actions (see Appendix for additional information)

This species is listed in Appendix II of CITES. Subpopulations occur in the Sierra de Alamos/Río Cuchujaqui Biosphere Reserve. An education and awareness programme as well as the long-term monitoring of the population will support the conservation of this species.

Credits

Assessor(s): Bösenberg, J.D.

Reviewer(s): Donaldson, J.S.

Contributor(s): Gregory, T., Chemnick, J., Morales, S. & Donaldson, J.S.

Authority/Authorities: IUCN SSC Cycad Specialist Group

Bibliography

Chemnick, J., Gregory, T.J. and Salas-Morales, S.H. 1998. A revision of *Dioon tomasellii* (Zamiaceae) from western Mexico, a range extension of *D. merolae*, and clarification of *D. purpusii*. *Phytologia* 83(1): 1-6.

Gonzalez-Astorga, J., Vovides, A. P., Cabrera-Toledo, D. and Nicolalde-Morejo, F. 2009. Diversity and genetic structure of the endangered cycad *Dioon sonorensis* (Zamiaceae) from Sonora, Mexico: Evolutionary and conservation implications. *Biochemical Systematics and Ecology* 36: 891-899.

Gutiérrez Ortega, J.S., Jiménez Cedillo, K., Pérez Farrera, M.A., Martínez, J.F., Molina-Freaner, F., Watano, Y. and Kajita, T. 2018. Species definition of *Dioon sonorensis* (Zamiaceae, Cycadales), and description of *D. vovidesii*, a new cycad species from northwestern Mexico. *Phytotaxa* 369(2): 107-114.

Gutiérrez Ortega, J.S., Jiménez Cedillo, K., Pérez Farrera, M.A., Vovides, A.P., Martínez, J.F., Molina-Freaner, F., Imai, R., Tsuda, Y., Matsuki, Y., Suyama, Y., Watano, Y. and Kajita, T. 2018. Considering evolutionary processes in cycad conservation: identification of evolutionarily significant units within *Dioon sonorensis* (Zamiaceae) in northwestern Mexico. *Conservation Genetics*.

Hill, K.D. and Stevenson, D.W. 1998-2006. The Cycad Pages. Available at: <http://plantnet.rbgsyd.gov.au/PlantNet/cycad/>.

IUCN. 2022. The IUCN Red List of Threatened Species. Version 2022-1. Available at: www.iucnredlist.org. (Accessed: 21 July 2022).

IUCN. 2023. The IUCN Red List of Threatened Species. Version 2023-1. Available at: www.iucnredlist.org. (Accessed: 11 December 2023).

Whitelock, L.M. 2002. *The Cycads*. Timber Press, Portland, Oregon.

Citation

Bösenberg, J.D. 2022. *Dioon sonorensis* (errata version published in 2023). *The IUCN Red List of Threatened Species* 2022: e.T42130A243387344. <https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T42130A243387344.en>

Disclaimer

To make use of this information, please check the [Terms of Use](#).

External Resources

For [Supplementary Material](#), and for [Images and External Links to Additional Information](#), please see the Red List website.

Appendix

Habitats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Habitat	Season	Suitability	Major Importance?
1. Forest -> 1.5. Forest - Subtropical/Tropical Dry	-	Suitable	-
8. Desert -> 8.2. Desert - Temperate	-	Marginal	-

Plant and Fungal growth forms

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Plant and Fungal growth forms
TS. Tree - small
C. Cycad

Use and Trade

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

End Use	Local	National	International
1. Food - human	No	Yes	Yes
13. Pets/display animals, horticulture	No	Yes	Yes

Threats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Threat	Timing	Scope	Severity
5. Biological resource use -> 5.2. Gathering terrestrial plants -> 5.2.1. Intentional use (species is the target)	Ongoing	Majority (50-90%)	Very rapid declines
Stresses: 2. Species Stresses -> 2.1. Species mortality			
11. Climate change & severe weather -> 11.2. Droughts	Ongoing	-	-
Stresses: 1. Ecosystem stresses -> 1.2. Ecosystem degradation			
11. Climate change & severe weather -> 11.3. Temperature extremes	Ongoing	-	-
Stresses: 2. Species Stresses -> 2.1. Species mortality			

Conservation Actions in Place

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Conservation Action in Place
In-place land/water protection
Occurs in at least one protected area: Yes
In-place education
Included in international legislation: Yes
Subject to any international management / trade controls: Yes

Conservation Actions Needed

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Conservation Action Needed	Notes
1. Land/water protection -> 1.1. Site/area protection	-
3. Species management -> 3.1. Species management -> 3.1.1. Harvest management	-
4. Education & awareness -> 4.3. Awareness & communications	-

Research Needed

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Research Needed	Notes
1. Research -> 1.2. Population size, distribution & trends	-
1. Research -> 1.6. Actions	-

Additional Data Fields

Distribution
Estimated extent of occurrence (EOO) (km ²): 6883
Number of Locations: 5
Lower elevation limit (m): 300
Upper elevation limit (m): 1,200
Population
Number of mature individuals: 2,400
Continuing decline of mature individuals: Yes
Population severely fragmented: No

Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 500

Errata

Errata reason: The map has been set to data sensitive.

The IUCN Red List Partnership



The IUCN Red List of Threatened Species™ is produced and managed by the [IUCN Global Species Programme](#), the [IUCN Species Survival Commission \(SSC\)](#) and [The IUCN Red List Partnership](#).

The IUCN Red List Partners are: [ABQ BioPark](#); [Arizona State University](#); [BirdLife International](#); [Botanic Gardens Conservation International](#); [Conservation International](#); [Missouri Botanical Garden](#); [NatureServe](#); [Re:wild](#); [Royal Botanic Gardens, Kew](#); [Sapienza University of Rome](#); [Texas A&M University](#); and [Zoological Society of London](#).